

STAFF MEMORANDUM



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To: THE COMMISSION

Arizona Corporation Commission

From: Robert Marvin
Director
Safety Division

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FEB 05 2015

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2015 FEB 5 PM 3 08

Date: February 5, 2015

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ORIGINAL

RE: IN THE MATTER OF THE APPLICATION OF THE ARIZONA DEPARTMENT OF TRANSPORTATION TO UPGRADE AN EXISTING CROSSING OF THE UNION PACIFIC RAILROAD COMPANY AT 15TH AVENUE IN THE CITY OF PHOENIX, MARICOPA COUNTY, ARIZONA, DOT NO. 741-459D.

DOCKET NO. RR-03639A-14-0385

Background

On November 5, 2014, the Arizona Department of Transportation ("ADOT") filed with the Arizona Corporation Commission ("Commission") an application for approval for the Union Pacific Railroad ("Railroad") to upgrade an existing crossing at 15th Avenue in the City of Phoenix ("City"), Maricopa County, Arizona, DOT No. 741-459-D.

The Safety Division's Railroad Safety Section, ("Staff"), ADOT, the City, along with the Railroad participated in several diagnostic review meetings of the proposed improvements to this crossing. All parties present were in agreement to the proposed improvements at the crossing. The following is a breakdown of the crossing in this application, including information about the crossing that was provided to Staff by ADOT.

Federal Highway Administration ("FHWA") Section 130

This project is federally funded pursuant to 23 U.S.C. § 130 ("Section 130"). The purpose of Section 130 is to comply with legislation seeking to eliminate hazards to pedestrians and highway vehicles at public railway-highway crossings. Only crossings which are located on public roads, and which are not primarily for the benefit of the railroad, are eligible for Section 130 funding. In order to be eligible for Section 130 funding, a crossing must be designated on the Commission's Annual Crossing Array as being a priority to receive safety upgrades. Arizona Revised Statute § 40-337.03 states that:

[T]he commission shall submit to the railroad involved and the city, county and department of transportation in which jurisdiction a public railroad grade crossing is located, an array of such crossings where the installation of automatic warning signals or devices should be considered during the year, or within a reasonable time thereafter depending upon the availability of monies, materials, labor and other factors involved in such installation.

This project was approved for Section 130 funding as part of the 2009 Commission Annual Array approved by Decision No. 71309, dated October 30, 2009. After designation on

the Annual Array, FHWA issues authorizations for design and construction of each project, reimburses ADOT for the cost and conducts a final inspection of each project. The Railroad will invoice ADOT for 100% of the cost of the project.

Fifteenth Avenue

Fifteenth Avenue is a two lane asphalt roadway, consisting of one thru southbound lane, and one thru northbound lane. Currently, this crossing consists of five tracks, one mainline with daily usage, and four industry tracks. It is equipped with flashing lights, bells, automatic gates and a cantilever for northbound traffic.

The proposed project consists of upgrading the automatic gates, along with LED flashing light units on both sides of the crossing, and a new cantilever with LED flashing lights for northbound traffic. The most northern of the five tracks will be removed and the southbound gate and flasher unit moved to comply with the Railroad's standard. New concrete surfaces will be installed in the remaining four crossings. The City will install and maintain the sidewalks and improve the roadway approaches to the crossing. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the State. The Railroad will maintain the warning devices and crossing surface after the upgrades are completed. The total cost of the project is \$900,000.

Traffic data for 15th Avenue was provided to ADOT by the City. Per the City, in 2010 there were 8,511 vehicles per day ("VPD") at this crossing. No Level of Service ("LOS") was available for this crossing.

The American Association of State Highway and Transportation Officials ("AASHTO") Geometric Design of Highways and Streets, 2004, states that the Level of Service characterizes the operating conditions on a facility in terms of traffic performance measures related to speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. This is a measure of roadway congestion ranging from LOS A--least congested--to LOS F--most congested. LOS is one of the most common terms used to describe how "good" or how "bad" traffic is projected to be.

The posted speed limit on 15th Avenue is 25MPH. Staff records, as well as the Federal Railroad Administration's ("FRA") accident/incident records indicate no accidents at this crossing.

Alternative routes from this crossing are: to the west .3 miles, a grade separated crossing at 17th Avenue and to the east .4 miles is 9th Avenue an at-grade crossing.

Train Data

Data provided by ADOT, through the FRA website regarding train movements through this crossing are as follows:

Train Count: 10 UP trains per day and 2 BNSF trains per day with no passenger service

Maximum Train Speed: 60 mph

Thru Freight/Switching Moves: there are daily switching movements through this crossing

Schools and Bus Routes

The following are schools near this crossing:

- *Capitol Elementary School* *330 N 16th Avenue*
- *Children First Academy* *374 N 6th Avenue*
- *Mary McLeod Bethune School* *1310 S 15th Avenue*
- *Paul Dunbar Lawrence School* *707 W Grant Street*

Per the Phoenix Elementary District and Phoenix Union High School District – no school busses cross these tracks.

Hospitals

ADOT gave the following response about hospitals and emergency services vehicles:

- *St. Luke's Medical Center* *1800 E Van Buren Street*
- *Maricopa Integrated Health System* *1201 S 7th Avenue*
- *Saint Joseph's Hospital and Medical Center* *350 West Thomas Road*

Fifteenth Avenue is not used as a major emergency services route.

Hazardous Materials

ADOT gave the following response when asked about vehicles transporting hazardous materials through this crossing:

The City states that it's not aware of any vehicles carrying hazardous materials utilizing this crossing and that 15th Ave. is not considered an alternative to I-10 at the Deck Park Tunnel.

Zoning

Staff requested information from ADOT regarding the type of zoning in adjacent areas from this crossing. The following was the response given:

According to the City's General Plan Land Use Map, the areas east and west of the crossing are zoned Commerce/Business Park.

FHWA Guidelines Regarding Grade Separation

The FHWA Railroad-Highway Grade Crossing Handbook (Revised Second Edition August 2007) provides nine criteria for determining whether highway-rail crossings should be considered for grade separation or otherwise eliminated across the railroad right of way. The Crossing Handbook indicates that grade separation or crossing elimination should be considered whenever one or more of the nine conditions are met. The nine criteria are applied to this crossing application as follows:

		15 th Ave.
The highway is a part of the designated Interstate Highway System	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
The highway is otherwise designed to have full controlled access	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
The posted highway speed equals or exceeds 70 mph	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
AADT exceeds 100,000 in urban areas or 50,000 in rural areas	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
Maximum authorized train speed exceeds 110 mph	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
An average of 150 or more trains per day or 300 million gross tons/year	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
Crossing exposure (trains/day x AADT) exceeds 1M in urban or 250k in rural; or passenger train crossing exposure exceeds 800k in urban or 200k in rural	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
Expected accident frequency for active devices with gates, as calculated by the US DOT Accident Prediction Formula including five-year accident history, exceeds 0.5	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No
Vehicle delay exceeds 40 vehicle hours per day	Crossing Currently meets the criteria	No
	Crossing meets the criteria by 2030	No

Grade Separation

ADOT gave the following response when asked about grade separation:

Grade separation was not considered by ADOT as part of this Section 130 safety upgrade because the crossing does not meet any of the criteria outlined in the FHWA-Grade Separation Guidelines. Cost estimates for grade separating this location would be in the \$30,000,000 range, due to the urbanized location.

Vehicular Delays at Crossings

The City has no information or complaints regarding delay, however the delay at the crossing is really a function of the average length of the train and the average speed that it is traveling.

For example: a 7,000 foot train traveling 30 miles per hour or 44 feet per second would cause a traffic delay of approximately 3.5 minutes.

Another commonly used measure outlined in the FHWA Guidelines; is the so-called Crossing Exposure Index (which is simply the product of the number of trains per day multiplied by the number of vehicles crossing daily) is not currently met at this crossing. The current crossing exposure is 102,132 at 15th Avenue, far below the 1,000,000 threshold for urban areas. It should be noted that the criteria identified in the FHWA material are not mandates, but guidelines established by the FHWA, which serve to alert those having jurisdiction that potential problems may arise.

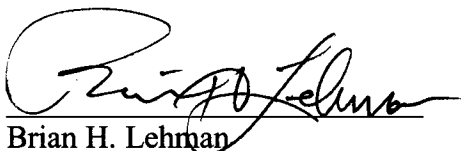
Staff has utilized the FHWA Guidelines to determine the potential need for grade separation at this crossing. Based on existing conditions, 15th Avenue meets none of the nine criteria for consideration of grade separation. Therefore, Staff does not recommend a grade separation at the crossing.

Crossing Closure

The City has stated they would not like to close this crossing. Doing so would negatively impact numerous businesses in the area. Staff realizes closing this crossing would force businesses to re-locate or possibly close. Therefore, Staff does not recommend closing the crossing.

Staff Conclusions

Having reviewed all applicable data, Staff supports ADOT's application. Staff believes that the upgrades are in the public's interest and are reasonable. Staff believes that the measures proposed by ADOT are consistent with other similar at-grade crossings in the State and will provide for the public's safety. Therefore, Staff recommends approval of ADOT's application.



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Original and thirteen (13) copies

Docket NO. RR-03639A-14-0385

of the foregoing were filed this
5th day of February, 2015 with:

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